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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/036,607	12/31/2001	Girma G. Desta	10541/162 (V200-03740)	4736

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EXAMINER

PHAM, LEDA T

ART UNIT PAPER NUMBER

2834

DATE MAILED: 08/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/036,607	DESTA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Leda T. Pham	2834	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20-29 is/are allowed.
- 6) ☒ Claim(s) 1-6 and 10-19 is/are rejected.
- 7) ☒ Claim(s) 7-9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All   b) ☐ Some \*   c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                    | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 –2, 4, and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Liang et al. (U.S. Patent No. 6,373,162 B1).

Referring to claim 1, Liang teaches a reluctance generator for an eddy current braking system in a vehicle (figure 1), comprising a stator assembly defining a core space (between 14 and 16), the stator assembly comprising a field winding (38) and a compensation winding (22), the field winding operable to induce a field magnetomotive force (MMF) in response to a first excitation, the compensation winding operable to induce a compensation magnetomotive force (MMF) in response to a second excitation; and a rotor (18) disposed in the core space, the rotor operable to generate an armature magnetomotive force (MMF), where the compensation MMF balances the armature MMF.

Referring to claim 2, Liang teaches the reluctance generator where the stator assembly defines a winding volume (the inside 12) where the field winding (38) is disposed along an outer portion of the winding volume (the space inside 28 and 30 see at the outer portion comparing to 12), and where the compensation winding (22) is disposed along an inner portion of the winding volume (the space inside 12).

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Referring to claim 4, Liang teaches the reluctance generator where at least one of the first and second excitations comprises a voltage (winding 22 has voltage for 53).

Referring to claim 18, Liang teaches the reluctance generator where the rotor comprises one of an axle and a drive shaft for the vehicle (20, figure 1)

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 3, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liang.

Referring to claim 3, Liang teaches the claimed invention except for the winding in round and rectangular shape. It would have been an obvious matter of design choice to change the shape of the winding to round wire (Rose, Sr. U.S. Patent No. 6,472,790 B2) and rectangular wire (Nakamura et al. (U.S. Patent No. 6,429,556 B1) for fitting the winding volume, since such a modification would have involved a mere change in the size or shape of a component. A change in size or shape is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

5. Referring to claim 19, Liang teaches the claimed invention except for the reluctance generator having an output voltage of 42V. Liang teaches that it is known to make the generator with the rotor, stator, and the winding in the figure 1 for controlling vary of the output voltage as set forth in the abstract. It would have been obvious to one having skill in the art at the time the

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invention was made to generate the output voltage to be 42V as taught by Liang, that such modification would generate the flux in an electrical machine.

6. Claims 5 –6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liang in view of Deck et al. (U.S. Patent No. 6,310,452 B1).

Referring to claim 5, Liang teaches the claimed invention except for the added limitation of one of the first and second excitations comprises a pulse width modulation excitation.

Deck teaches in his invention a winding comprising a pulse width modulation excitation (figure 2) for controlling the voltage output.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Liang's reluctance generator having a pulse width modulation excitation as taught by Deck. Doing so would control the output voltage of the system.

Referring to claim 6, Deck teaches the pulse width modulation has a duty cycle of about 35 percent (lines 37 – 40, column 3).

7. Claims 10 – 12, 16 – 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liang in view of Davenport (U.S. Patent No. 6,169,349 B1).

Referring to claim 10, Liang teaches the claimed invention except for the added limitation of the rotor comprises a first section and a second section disposed on opposite sides of a center ring mounted on a shaft.

Davenport teaches in his invention the rotor (figure 2) comprises a first section (22) and a second section (11) disposed on opposite sides of a center ring (21) mounted on a shaft for operating at high electrical efficiency.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Liang's reluctance generator having the rotor as taught by Davenport. Doing so would operate at high electrical efficiency.

Referring to claim 11, Davenport teaches the reluctance generator where the center ring is aligned with at least one of the field and compensation windings (figure 3).

Referring to claim 12, Davenport teaches the reluctance generator where the first section defines multiple first pole sections forming first pole slots (figure 2, R1 – R4) and where the second section defines multiple second pole sections forming second pole slots (figure 2 R'1 – R'4).

Referring to claim 16, Davenport teaches the reluctance generator where the first section comprises four first sections, and where the second section comprises four second pole sections (figure 2).

Referring to claim 17, Davenport teaches the reluctance generator where the center ring has a smaller diameter than one of the first and second sections (figure 2).

8. Claims 13 - 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Liang and Davenport as applied to claim 12 above, and further in view of Permuy (U.S. Patent No. 5,936,325).

Referring to claim 13, the combination of Liang and Davenport teaches the claimed invention except for the added limitation of the first pole sections are shifted in relation to the second pole sections.

Permuy teaches in figure 5 the rotor having the first pole sections are shifted in relation to the second pole sections for increasing the magnetizing in the rotor.

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Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the rotor with the pole sections are shifted as taught by Permuy. Doing so would increase the magnetizing in the rotor.

Referring to claim 14, Permuy teaches the reluctance generator where the first and second pole sections are shifted by about one pole slot (figure 3).

Referring to claim 15, Permuy teaches the reluctance generator where the first and second pole sections are offset by about 45 degrees (figure 3).

*Allowable Subject Matter*

9. Claims 7 – 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. Claims 20 – 29 are allowed.

11. The following is an examiner's statement of reasons for allowance: the record of prior art does not teach the reluctance generator having lamination sections disposed along an interior surface of a stator assembly, the lamination sections defining a core space and a winding volume. A field winding disposed along an outer portion of the winding volume, the field winding operable to induce a field magnetomotive force (MMF) in response to a first excitation. A compensation winding disposed along an inner portion of the winding volume, the compensation winding operable to induce a compensation magnetomotive force (MMF) in response to a second excitation.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue



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fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leda T. Pham whose telephone number is (703) 305-4864. The examiner can normally be reached on M-F (7:30-5:00) first Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3431.

Leda T. Pham  
Examiner  
Art Unit 2834

LTP  
August 2, 2003

*Thomas M. O'Leary*  
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